Implementing a Results Driven Driver Training Simulation Program

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What Are You Currently Teaching?

- What do you teach?
  - EVOC, CEVO, Accident Retraining
  - Lecture only
  - Lecture and skills
  - Cone course
  - Street driving
  - Simulation Training
- How long is the program?
- Who teaches your program?
- How serious are you and the department about Driver Training?

Academic Policy

- The policy should spell everything out
  - For the student
  - For the instructor
- It builds credibility
- Reduces stress
- At minimum it should explain:

<table>
<thead>
<tr>
<th>Passing criteria</th>
<th>Types of maneuvers</th>
</tr>
</thead>
<tbody>
<tr>
<td>How grading occurs</td>
<td>Written exams</td>
</tr>
<tr>
<td>Attendance</td>
<td>Dress code</td>
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<tr>
<td>Classroom conduct</td>
<td>Integrity</td>
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</tbody>
</table>
Instructor Certification

- No national EVOC program.
- EVOC Instructor Training through state sponsored programs
- Learn from others
  - Get CDL training from Transit Training
  - Learn how other EMS, Fire, Police and Transit agencies grade and teach driver training.
  - Share lesson plans and lecture material from other departments; Fire, Police, EMS, etc.

Instructor Certification

- NFPA
  - 1002
    - Standard for Fire Apparatus Driver/Operator Professional Qualifications
  - 1451
    - Standard for a Fire Service Vehicle Operations Training Program
  - 1500
    - Standard on Fire Department Occupational Safety and Health Program
- NFFF
  - Life Safety Initiatives
- ISFSI
- USFA
- IFSTA
  - Apparatus Operator
  - CEVO III
    - Fire & Ambulance Programs
- State Certifications
  - OFPC
  - DOH

So Now I Have a Box, What Do I Put In It?
Knowledge & Skills

- Knowledge: the information to process the situation and come to a reasonable conclusion.
  - What type of training develops knowledge of department policies and state laws?

- Skills: the aptitude needed to maintain control of a vehicle in different types of driving conditions.
  - What type of training develops skills in vehicle handling and spatial perception?

Judgment & Experience

- Judgment: the cognitive process of reaching a decision or drawing conclusions.

- Experience: the accumulation of knowledge and/or skill that results from direct participation in events or simulations.
  - What is the definition of experience?
  - What type of training develops the judgment and provides experience without risk of damage, injury or death?

Attitude & Behavior

- Attitude is a complex mental state involving beliefs, feelings and values to act in certain ways.

- Behavior is the manner in which one acts or controls themselves.

- Bad behavior without consequence leads to more bad behavior!

- Bad behavior with consequence eliminates bad behavior.
So How Much Do I Need?

AAA Foundation, NHTSA, DOT, NTSB, CDC Studies show the average driver needs:

- **10%** Knowledge
- **10%** Skills
- **80%** Attitude
- **100%**

Are Collisions a Part of the Job?

Can you influence Driver Behavior?

DRIVER TRAINING

Triangle of Training

- EVOC training programs should consist of:
  - Didactic (Lecture)
  - Training auxiliaries (simulators, etc.)
  - Psycho-Motor
  - Decision making
  - Simulation training
What is the goal of Driver Training?

- Raise Awareness Level of the EVO.
- Improve Driving Skills of the EVO.
- Increase Safety for all.
- Decrease Liability to Department.
- Improve effectiveness of the department’s mission.

What Are Your Needs?

- Dedicated Training Facilities or Transportable classroom
- Instructors
  - Dedicated
  - Passionate
  - Knowledgeable
- Classroom Space
  - Instructor space
  - Student space
  - Simulator space

Training Vehicles

- Vehicles: training vs. operational
  - Training vehicles
    - Older vehicles retrofitted
    - Instructor brake/controls
    - Lower miles, but harder miles
    - Storage needs
  - Operational vehicles
    - Tend to be newer
    - In better shape and maintained
    - Students come with them
Training Field

- Location close to classroom/simulator room
- Space
  - Large enough to accommodate all maneuvers safely
- Safety
  - Minimal barriers or poles in the way
    - Ideal would be none
  - Safe areas for students waiting to drive
- Number of vehicles allowed on field.

How Many Employees?

- Are you training:
  - All employees
  - Refresher employees
  - Only new employees
  - Employees that pose a liability
  - Specialized vehicle drivers

Training should be from "hire to retire" and performed annually.

How Many Hours?

- What came first, the hours or the curriculum?
- The two go hand in hand
- How much time do you need?
- Depends on instructor/student ratio
- Depends on the number of vehicles used.
- Depends on the amount of curriculum to be taught.
Developmental Phases

**Phase 1**
- Resources: Time, Space, Instructors, Logistical

**Phase 2**
- Content
  - Lecture material
  - Skills objectives
  - Simulation training

**Phase 3**
- Implementation
  - Monitoring
  - Record Keeping
  - Observable objectives
  - Re-evaluation

Lecture Time
- Didactic material can range from 4-8 hours and can be supplemented with CBT.
  - No more than 20 minutes per section
  - No more than 90 minutes per session
- Computer Based Training (CBT)
  - Great for standardized procedures
  - Eliminates conflicting information from various instructors
  - Can include multimedia enhancement of concepts

Making It All Fit
- Student/Instruction Ratios:
  - 3:1
    - Most conducive for training and effectively using time
- Vehicle/Space Ratio:
  - Depends on:
    - Type of vehicle
    - Type of maneuver
- Simulator Space
  - Can fit in 10’ x 10’ environmentally controlled room
Skills Space

- How big a field?
  - "The Raheb Formula"
  - Minimums:
    - Length: 10 times vehicle length
    - Width: Turning Radius x 2/3 TR x 2 (each side)
  - Example:
    - Length: 25 ft vehicle x 10 = 250 ft long field.
    - Width: 30 ft TR x .66 = 20 ft x 2

Skills Space

- This will allow one vehicle to operate
- Overlapping space is:
  - Dangerous
  - Nonproductive.
- Illustration of a basic maneuver
  - Note the safety zones
  - Note the areas for correction
Skills Time

- Most students will spend approximately 25% of their time driving.

- The remaining time will be setting up and breaking down maneuvers and watching classmates perform.

- Use this time to incorporate the simulator

Skills Time

- Maneuvers:
  - Basic
    - Backing concepts
    - Spatial concepts
    - Mirrors and side judgment concepts
  - Advanced
    - Forward concepts
      - “Not driving over the hood”
    - Forward planning
    - Spatial concepts
      - Building confidence
      - Mirrors and side judgment concepts

Scene Safety

- Always return to the basics.
- Scene Safety
- Lighting and placing flares.
- Traffic control
- Vehicle placement
- PPE
- Nighttime Operations
Training

- Analytical training is approximately 80% of what and how we teach EVOC.
- Analytical training is also the least effective way to train drivers.
- So why do we train this way?
  - Measurable
  - Scientific
  - Laws and regulations
  - CYA

Training

- Behavioral training is used in approximately 20% of training
- Behavioral training helps the student to make good decisions
- All training has an analytical component and needs more behavioral training.
Simulators

- Open cab
  - 3 or 5 channel view
- Custom cab fully enclosed
  - 5 or 7 channel view
- Full accurate detailed cab compartment controls
- Accurate vehicle brakes
- Accurate steering feedback
- Flat screen monitors
- Engine, environmental and Doppler effect sounds
- Control weather and traffic conditions
- 2 way radio communications
- Combine simulators for interactive training between members

Simulation Training

- Students rotate through the simulator during skills practice and testing.
- Students spend approximately 15 min/session of simulation training
- Students are NOT tested on the simulator
- Learning experience only
- Prefer crashing to driving simulator safe

Simulation Training

- Acclimation:
  - 3 scenarios
    - Highway driving
    - Stop and Go
    - Crazy 8's
  - 2 minute scenarios
    - Simple driving maneuvers
    - Reinforce lecture material
### Simulation Training

- **Progression**
  - Basic
    - Mirrors
    - Depth perception
    - Blind spots
    - Following distances

### Simulation Training

- **Advanced**
  - Multi-tasking
  - Decision making
  - Identifying potential hazards

- **Ancillary learning items**
  - Map reading
  - Radio Communications
  - Scene Survey

### Additional Simulation Training

- Simulator becomes additional skills space
  - Students identified on skills course
  - Weak drivers
  - Weak mirror use
  - Weak dimensional analysis
  - Serpentine through El pillars
  - Cone courses
  - Scenarios are not used
### Simulation Training

- **Instructor/Student Interaction**
  - During Practice Session
    - Students gather around sim for demonstration
    - Students watch each other while rotating through
    - Instructor moves around sim pointing out various items as needed
  - During Evaluation Session
    - One student at a time
    - Instructor sits at IOS behind screen
    - Student makes all decisions

### Simulator Results

**Initial Simulation Training (n=268)**

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<th>Unexpected hazards</th>
<th>Scene placement</th>
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<tbody>
<tr>
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<td>Fail</td>
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**Secondary Simulation Training (n=268)**

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Simulation Training

- Simulator:
  - Is a tool
  - Simulation does not replace actual EVOC program
  - Only as good as your instructor

Scenario:
- Real world situations
- Every scenario must be “winnable”
- Gradually increasing multi-tasking skills
- Duplicable, fair, and reviewable

Does It Work?
Some Stats

Intersection Collisions Continue to Decline Despite an Increase in Overall MVCs

MVC's decline even though Call Volume increases

Four Year Comparison

2000-2003
- Average of 700 collisions per year
- 40% are intersection collisions
- 60% are caused by employees with less than 3 years employment

2004-2007
- Average of 700 collisions per year
- 20% are intersection collisions
- 60% are caused by employees with less than 3 years employment
Summary

- Determine your needs early on into the program.
- Don’t be afraid to “tweak” them multiple times during development.
- Incorporate the three aspects of training “Triangle of Training”.
- Develop measurable studies that produce outcomes early on.
- Have an Academic Policy in place
- Train on the vehicle they are expected to drive.

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THE END